PORSF
11.3.31.5.1 V2

Columbia Analytical Services, Inc.

February 22, 1996 Service Request No.: K9600625

C.J. Santavicca
Hall-Buck Marine
P. O. Box 83838
Portland, OR 97283

Dear C.J.:

Enclosed are the results of the sample(s) submitted to our laboratory on February 2, 1996. For your reference, these analyses have been assigned our service request number K9600625.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 260.

Respectfully submitted,

Columbia Analytical Services, Inc.

Joe Wiegel
Project Chemist

JW/bs

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COLUMBIA ANALYTICAL SERVICES INC.

Analytical Report

Client: Hall-Buck Marine
Project: NA
Sample Matrix: Misc.

Service Request: K9600625
Date Collected: 2/1/96
Date Received: 2/2/96
Date Extracted: 2/6/96

Total Metals
Units: mg/Kg (ppm)
As Recieved Basis

		Sample Name:	Oregon Steel Slag	Method Blank
		Lab Code:	K9600625-001	K9600625-MB
		Date Analyzed:	2/6/96	2/6/96
Analyte	**EPA Method**	**MRL**		
Antimony	6010A	10	<50(D)	ND
Arsenic	7060	1	3	ND
Beryllium	6010A	1	<5(D)	ND
Cadmium	6010A	1	<5(D)	ND
Chromium	6010A	2	3970	ND
Copper	6010A	2	210	ND
Lead	6010A	20	<100(D)	ND
Mercury	7471	0.2	ND	ND
Nickel	6010A	20	<100(D)	ND
Selenium	7740	1	ND	ND
Silver	6010A	2	<10(D)	ND
Thallium	7841	1	ND	ND
Zinc	6010A	2	70	ND

D The MRL is elevated because of matrix interferences and because the sample required diluting.

Approved By: _____ Date: 2/21/96

COLUMBIA ANALYTICAL SERVICES INC.

Analytical Report

Client:	Hall-Buck Marine	**Service Request:**	K9600625
Project:	NA	**Date Collected:**	2/1/96
Sample Matrix:	Misc.	**Date Received:**	2/2/96
		Date TCLP Performed:	2/5/96
		Date Extracted:	2/6/96

Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

				Oregon Steel	
			Sample Name:	**Slag**	**Method Blank**
			Lab Code:	K9600625-001	K9600625-MB
			Date Analyzed:	2/6/96	2/6/96
Analyte	**EPA Method**	**MRL**	**Regulatory Limit***		
Arsenic	3010/6010A	0.1	5	ND	ND
Antimony	3010/6010A	0.05	-	ND	ND
Barium	3010/6010A	0.5	100	1.3	ND
Beryllium	3010/6010A	0.005	-	ND	ND
Cadmium	3010/6010A	0.01	1	ND	ND
Chromium	3010/6010A	0.01	5	ND	ND
Copper	3010/6010A	0.01	-	ND	ND
Lead	3010/6010A	0.05	5	ND	ND
Mercury	7470	0.001	0.2	ND	ND
Nickel	3010/6010A	0.02	-	ND	ND
Selenium	3010/6010A	0.1	1	ND	ND
Silver	3010/6010A	0.01	5	ND	ND
Thallium	3010/6010A	0.1	-	ND	ND
Zinc	3010/6010A	0.5	-	ND	ND

* From 40 CFR Part 261, et al., and *Federal Register*, March 29, 1990 and June 29, 1990.

Approved By: _____ Date: 2/21/96

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Hall-Buck Marine
Project: NA
Sample Matrix: Misc.

Service Request: K9600625
Date Collected: 2/1/96
Date Received: 2/2/96
Date TCLP Performed: 2/5/96
Date Extracted: 2/6/96
Date Analyzed: 2/6/96

Matrix Spike Summary
Toxicity Characteristic Leaching Procedure (TCLP)
EPA Method 1311
Metals
Units: mg/L (ppm) in TCLP Extract

Sample Name: Oregon Steel Slag
Lab Code: K9600625-001

Analyte	Spike Level	Sample Result	Spiked Sample Result	Percent Recovery*
Arsenic	4	ND	3.6	90
Antimony	1	ND	0.94	94
Barium	4	1.3	4.8	88
Beryllium	0.1	ND	0.089	89
Cadmium	0.1	ND	0.09	90
Chromium	0.4	ND	0.33	82
Copper	0.5	ND	0.46	92
Lead	1	ND	0.88	88
Mercury	0.01	ND	0.008	80
Nickel	1	ND	0.85	85
Selenium	2	ND	2.0	100
Silver	0.1	ND	0.08	80
Zinc	1	ND	0.89	89

* Percent recovery information is provided in order to assess the performance of the method on this matrix.

Approved By: _____ Date: 2/21/96